National Institute of Environmental Health Sciences

Climate change epidemiology: Methodological challenges

Author(s): Xun WW, Khan AE, Michael E, Vineis P
Year: 2010
Journal: International Journal of Public Health. 55 (2): 85-96

Abstract:

Climate change is now thought to be unequivocal, while its potential effects on global and public health cannot be ignored. However, the complexities of the causal webs, the dynamics of the interactions and unpredictability mean that climate change presents new challenges to epidemiology and magnifies existing methodological problems. This article reviews a number of such challenges, including topics such as exposure assessment, bias, confounding, causal complexities and uncertainties, with examples and recommendations provided where appropriate. Hence, epidemiology must continue to adapt by developing new approaches and the integration of other disciplines such as geography and climatology, with an emphasis on informing policy-making and disseminating knowledge beyond the field.

Source: http://dx.doi.org/10.1007/s00038-009-0091-1

Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Health Professional, Policymaker, Researcher

Early Warning System: ☑

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☑

weather or climate related pathway by which climate change affects health

Air Pollution, Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Food/Water Quality, Food/Water Security, Food/Water Security, Human Conflict/Displacement, Human Conflict/Displacement, Sea Level Rise, Temperature

Air Pollution: Ozone

Extreme Weather Event: Drought, Flooding

Food/Water Quality: Pathogen, Other Water Quality Issue

Water Quality (other): Ocean temperature; Saltwater intrusion

Food/Water Security: Food Access/Distribution

Temperature: Extreme Heat, Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

General Geographical Feature

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Infectious Disease, Injury, Mental Health/Stress, Morbidity/Mortality

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): Hypertension

Infectious Disease: Foodborne/Waterborne Disease, Vectorborne Disease, Zoonotic Disease

Foodborne/Waterborne Disease: Cholera, General Foodborne/Waterborne Disease

Vectorborne Disease: General Vectorborne

Zoonotic Disease: General Zoonotic Disease

Mental Health Effect/Stress: Stress Disorder

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Medical Community Engagement: ☑

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Methodology

Population of Concern: A focus of content

Other Vulnerable Population: Women

Resource Type: ☑

format or standard characteristic of resource

Research Article, Review

Resilience: ☑

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content